NITF Imagery Compression Users Handbook
Topical Outline

1) **Forward** Standard boilerplate concerning intelligence community, commitment to interoperability and beneficial comments.

2) **Scope**

   a) Purpose (What this document is intended to do, information it will present)

   b) Introduction (Standard introduction with emphasis on non-technical audience)

   c) Organization (Order the information is presented, description of each section)

3) **Compression**

   a) General /Discussion (description) of compression

      i) Loss-less Compression

      ii) Lossy Compression

      iii) Proprietary/Commercial compression algorithms

   b) Using Compression (Discussion of why and when compression should be used, emphasis on benefits [faster delivery; stress that some image detail is lost])

      i) Why compression is used

      ii) When to use compression

         (1) Overview - description of typical tactical communication media (Depict different communication media and portray the association between communication through put (2.4 bps [tactical radios/telephone, T1/T3) and compression). This will be illustrated using a mix of text and figures.

         (2) Concatenation – Describe what concatenation is, its effects, illustrate (Will use EK's results for this section)

   c) Image Types (EO, IR, SAR) from both manned and unmanned platforms. Examples of each imaging phenomenon will be depicted for each compression algorithm and their variants. Ideally, images of the identical scene will be used in all cases. MSI (LANDSAT/SPOT) will be included

      (1) EO

         (a) Manned

         (b) Unmanned

      (2) IR

         (a) Manned

         (b) Unmanned

      (3) SAR

         (a) Manned

         (b) Unmanned

      (4) Video

         (a) UAVs

      (5) MSI

(a) Color (RGB/CMYK)

(b) Pseudo Color (LANDSAT)

(6) Medical applications (X-rays, etc.)

d) NITF Compression Algorithms (for each, image [all types] examples will be shown, when an algorithm can be applied with different settings, they will be depicted).

(1) JPEG

(a) Loss-less

(b) Lossy

(c) Q Tables (Description/Discussion)

(i) Q-1

(ii) Q-2

(iii) Q-3

(iv) Q-4

(v) Q-5

(vi) Embedded Q Tables – NITF 2.1

(d) Huffman Tables

(e) Pre/Post Processing

(f) Downsampled JPEG

(i) NIMA Method 4

(2) Bi-level

(3) VISP1.21

e) National Image Compression

i) Other Compression Algorithms

(1) WAVELETS

(2) Fractals

(3) Place Holder

ii) Why (When) not to use compression

4) JPEG 2000

a) General discussion

b) Other (Place holder)

Appendices (Appendices will include a discussion of NITF, its history, etc.)

A. Background

B. History

C. Acronyms and Abbreviations

D. Points of Contact